

Coagulation versus agglutination

Coagulation and agglutination have very little in common...

However, we often hear that when blood is typed, the sample "coagulates". However, this is a false statement. Thus:

- **Coagulation** = "clotting" of blood
 - is a chain of proteolytic reactions of plasma coagulation factors. The result is the polymerization of fibrin and the formation of a clot.
- **Agglutination** = clumping of blood cells
 - is an antigen-antibody reaction. Non-covalent reaction between plasma proteins and erythrocytes.

Comparison of hemocoagulation and hemagglutination

| parameter | coagulation | agglutination |
|---------------------------------------|---------------------------------------|---|
| <i>Meaning</i> | Stop bleeding | Removal of non-self antigen |
| <i>Reaction</i> | Enzymatic proteolysis | Immune reactions (weak interactions) |
| <i>Reactants</i> | Plasma proteins | Erythrocyte antigens+antibodies in plasma |
| <i>Enzymatic reaction</i> | yeas | no |
| <i>Where the reaction takes place</i> | In plasma, blood cells are not needed | Plasma and erythrocytes |
| <i>Result</i> | Polymerized fibrin | Immunocomplexes |